



# Configuration Manual



Intuitive solutions for energy conservation

**Conserve Energy**  
**Protect the Environment**  
**Save Money**



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## Regulatory Information

### FCC Notice

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment uses and generates radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try and correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is
- Consult the dealer or an experienced radio / TV technician for help.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment. To comply with FCC RF exposure compliance requirements, a separation distance of at least 20 cm (7.88") must be maintained between the antenna of this device and all persons. This device must not be located, co-located or operated in conjunction with any other antenna or transmitter.

### Copyright

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### Patents

This product is protected under the following patents: United States Patent 8325057, China Patent 101765758, Japan Patent 5026530 and New Zealand patent 579331. Other patents pending.

This Product is licensed under the Wireless Network Patent Portfolio, for use by a consumer or other users for which there is no remuneration. Any other users of this Product in any manner is not licensed and is expressly prohibited without a license under applicable patents in the Wireless Network Patent Portfolio, which license is available from MPEG LA, LLC, 4600 S. Ulster ST., Suite 400, Denver, Colorado 80237 U.S.A. See [www.mpegla.com](http://www.mpegla.com).

### Notices

This manual has not been created to be specific to any individual's or organizations' situation or needs. This manual reflects features available in the Aztech In-Home Display. Your display may not have all the features shown. Every effort has been made to make this manual as accurate as possible. However, there may be typographical and/or content errors.

**Although efforts have been made to provide accurate electricity cost information, all electricity cost data displayed by the In-Home Display is estimated for informational and educational purposes only and not for billing.**

## Welcome

Congratulations on the purchase of your Aztech In-Home Display!

This Configuration Manual describes how to set your user preferences, configure and trouble shoot your In-Home Display (IHD).

Your Aztech In-Home Display provides you with intuitive, actionable and timely information about your whole home electricity usage. Your display communicates wirelessly to the Smart electricity meter installed on your home to present electricity used, its estimated cost, and historical usage information. Your display is designed to provide your entire family with easy to understand information about how much electricity you are consuming and how much it costs. While the Aztech IHD is designed to provide you with exceptional functionality, not all functionality is supported by all Utility companies.

**Aztech understands that people learn in different ways and makes a concerted effort** to use a wide range of presentation methods including lights, icons, text and graphs. To help you monitor your progress towards meeting your energy efficiency and budgetary goals, the Aztech In-Home Display provides graphs that clearly communicate not only how much electricity was consumed, but when it was consumed and how much it costs. Graphical feedback provides evidence of success and identifies times of high cost or use to promote further targeted conservation action.

The In-Home Display is crowned by a patented light arc that alerts you to current electricity price and usage levels, and enables you to make immediate changes to reduce your energy consumption. The light arc's easy to understand color code will engage even preschoolers in household in conservation. The speed at which the colored light moves along the arc correlates to your energy consumption (turn off an appliance and watch it slow down); and the color of the light reflects your electricity rates.

While a 120V AC power adapter is provided to power your In-Home Display under normal operation, your display also supports battery powered operation so that you can take the display through your home and explore how the use of different appliances impacts your electricity use. For more information about this feature, see the *Quick Read* section of the User Manual. ***Before operating on battery, the IHD must be plugged into AC power for at least 4 hours to charge the battery.***

This manual provides instructions for setting user preferences, configuring the system setup, and troubleshooting the In-Home Display. A separate User Manual for this product can be found on [www.myaztech.ca](http://www.myaztech.ca) that describes the features and operation of the In-Home Display.



## Features of Your In-Home Display (IHD)

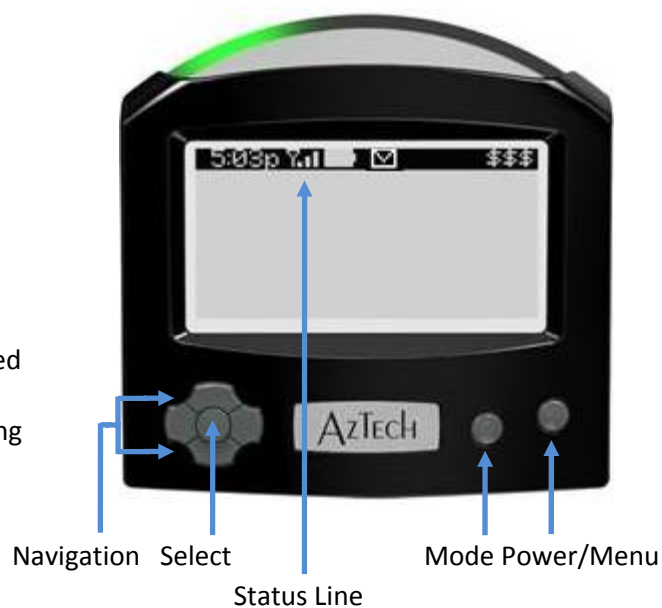
### Light Arc

The light arc color reflects the relative price of electricity; from lowest to highest: green; yellow; red; magenta and purple.

*If your Utility only uses a single price for all electricity use, the light arc will glow green.*

The light on the arc moves from left to right as electricity is used, and right to left as electricity is generated

The faster the movement, the more electricity you are using or generating



### Buttons

#### Navigation buttons:

- Use the up and down Navigation buttons to scroll through menus.
- Use the right and left Navigation buttons to scroll between edit fields within configuration screens.

#### Select button:

- Press the center Select button to select a menu option.

#### Mode button:

- Press the Mode button to toggle between cost (\$) and usage (kWh).

#### Power/Menu button:

- When off, press once to turn the IHD on.
- Press once to access the menus.

### Status Line

5:03p

Label alternates between current time and date.



**Antenna icon**

Displayed when your IHD connects wirelessly to your electricity meter.



- When flashing, the signal strength is weak.
- When the signal has been lost, the three bars are replaced with an X.



**Battery icon**

Illustrates the approximate battery level. **Before operating on battery, the IHD must be plugged into 120V AC power for at least 4 hours to charge.**

**\$\$\$ Rate indicator** Icon or label that indicates the current price of electricity (some Utility companies will use \$ symbols, others will use different symbols or labels).

When in Generated and G&C Presentations, and you are generating electricity, the rate indicator will be, 'GEN.'

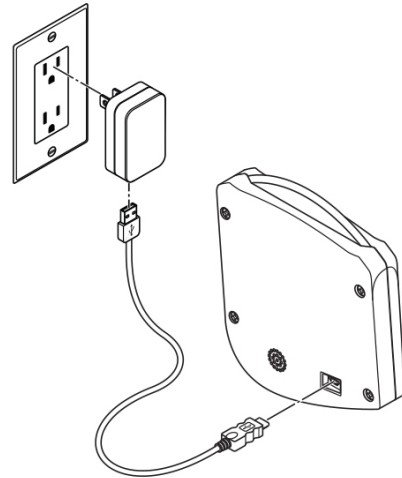
**Message Icon** Displayed when your Utility sends you a message.

## Powering Your In-Home Display

### Powering Up

Plug the power adapter into a 120V electrical outlet.

Press the Power/Menu button on the far right to turn the device on.



### Battery Operation

Your IHD also supports battery powered operation for short periods, so that you can take the display throughout your home and explore how the use of different appliances impacts your electricity consumption. (Please see the *Quick Read* section of the User manual for instructions). This information will help you determine where you may be wasting electricity, and is an important conservation step.

*Before operating on battery, the IHD must be plugged into 120V AC power for at least 4 hours to charge the battery.*

To conserve battery life, the IHD will automatically turn the backlight and light arc off when the IHD is inactive. The light arc and backlight will turn on for a short time to illuminate the screen when the up or down Navigation buttons are pressed.

### Shutting Down

Press the Power/Menu on the right to access the menu.

Use the *down navigation* button to scroll to the *Shut Down* option.

Use the *Select* button to choose *Shut Down*.

Use the navigation buttons to choose *Yes* or *No*, and use the *Select* button to select your choice.

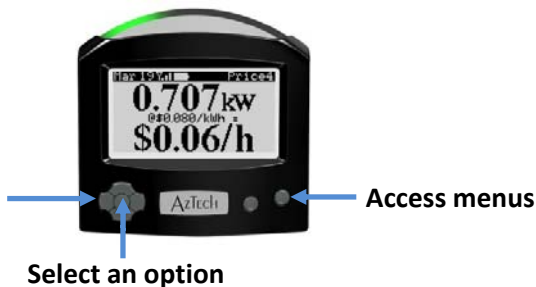


Select

Power/Menu

## Menu Navigation

Scroll through menu options and between editable fields



Access menus

Select an option

Press the *Menu* button on the right to access menus.

Use the *up and down Navigation* buttons on the left to scroll through menu options.

Use the *right and left Navigation* buttons to scroll between editable fields within a configuration screen.

Use the *Select* button to select an option.

Select the *Exit*, *Save & Exit* or the *Exit Without Save* menu options or press the menu button again to return to the previous menu.

*The Information screens will be displayed after exiting the main menu.*

## Manual Overview

This Configuration Manual describes how to personalize, configure and trouble shoot your IHD.

1. **Options for personalizing your IHD are found in the *Preferences* menu** and include setting your preferred:
  - language from the available selection
  - sight and sound settings for the light arc, screen and audible tones
  - number format: European or North American
  - time format: 24 hour or 12 hour format
2. **The *System Setup* menu enables:**
  - viewing the time and date (set automatically by the Utility)
  - password protected access to meter setup information (with the support of your Utility)
3. **Options for configuring your IHD are found in the *Configuration* menu and include:**
  - changing the presentation of your display: Consumed, Generated or Generated & Consumed.
  - setting your electricity rates (where available)
  - setting / resetting your summary periods

Once an editable configuration option is selected, you will be provided the opportunity to change and save it.

- if you choose not to change it, the display will revert to the menu when you select *Exit Without Save*
- if you choose to change it, the display will present the available options or provide an entry field(s).
- once you select an option or populate the field(s), you may be asked to:
  - confirm your choice by selecting *Save & Exit*
  - request to modify your selection or entry again by selecting *Change* or



- return to the original value by selecting *Exit Without Save*.

#### 4. Screens to support trouble shooting your IHD are found in the **About** menu and include:

- radio: identifies the radio specific information
- meter: identifies the meter that the IHD is communicating with
- IHD: identifies the device serial number and hardware and firmware version numbers
- meter reading: presents the total energy value (kWh) and tier values from the Smart meter
- about price: provides a summary of energy pricing in effect

## Personalizing your IHD (Preference Menu)

Your Aztech In-Home Display provides the opportunity to personalize key features.

**Options for personalizing your IHD found in the *Preference* menu include setting:**

- language preference from available menu
- sight and sound preferences for the light arc, screen and audible tones
- number format preference: European or North American
- time format preference: 24 hour or 12 hour format



**Press the menu button to access the *Main* menu and then select the *Preferences* menu option to get started.**

## Language

To customize your IHD to use your preferred language, **select the *Language* menu option.**

Choose from available language options

*This selection only impacts the language of labels on the information screens and menus, not any messages that may be sent by your Utility company.*





## Sight and sound

To customize your IHD's sight and sound settings for the light arc, screen and audible tones, **select the *Sight and Sound* menu.**

Your options for customization include:

- adjusting your display contrast
- adjusting your display backlight brightness
- adjusting the light arc brightness
- setting the night mode parameters
- turning the sound on or off



## Contrast

Contrast refers to the visual difference between the text and the background on the display screen.

**If the text presented on the display is difficult to read, adjust the contrast level using the up and down Navigation buttons.**

*Contrast level 1 – lightens the background relative to the text*

*Contrast level 10 – darkens the background relative to the text*



## Backlight

**Set the brightness of the display's backlight over a 24 hour period. A 24 hour period is divided into two modes: *Day* and *Night*.**

**(Set the hours that *Day* and *Night* modes start in the *Night Mode* menu option.)**

**Use the up and down Navigation buttons to adjust the brightness of the display's backlight to make the text easy to read.**

*Backlight level Off – turns the backlight off*

*Backlight level 1 – dims or minimizes the backlight*

*Backlight level 10 – maximizes the backlight*

## Light Arc

**Set the brightness of the Light Arc for *Day* and *Night* modes.**

**(Set the hours that *Day* and *Night* modes start in the *Night Mode* menu option.)**

Adjust the brightness of the display's light arc for each period by using the up and down Navigation buttons.

*Light arc level Off – turns the light arc off*

*Light arc level 1 – minimizes the brightness of the light arc*

*Light arc level 10 –maximizes the brightness of the light arc*

*It is recommended that the light arc remain on to provide at-a-glance feedback about your current electricity use and price and increase conservation awareness.*



## Night Mode

The parameters for 'Day' and 'Night' control when your Backlight and Light Arc brightness will change during any 24 hour period.

To set the parameters,

- select the **Night Mode** menu option,
- select **Change**
- enter the time you would like 'Day' mode to start and press select
- enter the time you would like 'Night' mode to start and press select
- select **Save & Exit**



For the Light Arc and Backlight brightness to retain Day mode settings, **set the same start time for Day and Night mode.**

## Sound

Your IHD is equipped with tones that are audible each time you press a button on your IHD.

The sound may be turned on or off from this menu option.

**\*\*Your Sound, Number format and Time Format preferences are all set in the same way: use the up and down navigation buttons to choose between the options, and then press the Select button.\*\***

## Number format

To customize your IHD to use your preferred number format, **select the *Number Format* menu option.**



Options include: **North American or European**

*Example:*

*One thousand dollars is presented as:*

- \$1,000.00 if the North American format is selected or as
- 1 000,00\$ if the European format is selected.

*This selection only impacts labels on the information screens.*

## Time format

To customize your IHD to use your preferred time format, **select the Time Format menu option.**

Options include: **24 hour or 12 hour time formats**

*Example:*

*6:36 in the evening is presented as:*

- 18:36 if the 24 hour format is selected or as
- 6:36pm if the 12 hour format is selected

*This selection only impacts labels on the information screens.*



## System Setup

**The System Setup menu enables:**

- viewing the time and date (set automatically by the Utility)
- password protected access to meter setup information (with the support of your Utility company)

## Meter Setup

This menu option is password protected as it should only be accessed with the instruction and support of your Utility company.

It is rare that the menu needs to be accessed, and your Utility company will supply a password and instructions if needed.

## Time and Date

This screen will display the current time and date.



They are set and maintained by your Utility through your Smart meter, and will automatically update for daylight savings time transitions (where applicable).

## Configuration

The Configuration menu enables further customization of your display screen presentation through the Display Presentation option.

Other options accessed via the Configuration menu relate to:

- Electricity Rates
- Summary Reset



## Display Presentation

The Aztech IHD allows you to view electricity information in three Display Presentations: Consumed, Generated, and Generated & Consumed (G&C).

The default Display Presentation on your IHD is 'Consumed'.

If you are not a Solar customer, set your Display Presentation to 'Consumed'.



Solar Customers: You will benefit from viewing your information in Generated and G&C. With three *Display Presentations*, the Aztech IHD allows you to focus on the aspect of your electricity generation and consumption profile that best informs your conservation efforts at any given time.

**Press the menu button to access the *Main* menu and select the *Configuration* menu option to get started. Select *Display Mode*, and choose the *Display Presentation* you would like to use.**

Your Display Presentation choice will impact the type of information displayed on your screen.

Within each Display Presentation you have the option to select:

- **Change;**
- **Exit Without Save; or**
- **Save & Exit**

To move from one Display Presentation to another select *Change*, **use the up and down navigation buttons to move between:**



- Consumed;
- Generated; and
- Generated & Consumed

In each Display Presentation you may view each information screen in two modes (please see the User Manual for flow charts of the information screens in each Display Presentation):

- In the Consumed Presentation you can view your screens in Cost and Usage;
- In the Generated Presentation you can view your screens in Income and Generated; and
- In the G&C Presentation you can view your screens in Cost/Income, and Usage/Generated



## Electricity Rates

### Current Rates

Screen includes information about:

- electricity rate for each tier (where supported by your Utility)
- Your IHD supports Time of Use (TOU), Block, and Flat rates structures for electricity consumed.
- It supports Flat rates (or one rate tier) for electricity generated (solar customers only).



The electricity rates in your IHD are transmitted by your Utility through your Smart meter.

Electricity rates are used to estimate the costs shown on the IHD's information screens.

Costs are calculated and stored using the IHD's rate in effect at the time the electricity is consumed.

*New electricity rates sent by the Utility will impact electricity costs as of their effective date and time. Rates updated from the IHD menu are effective upon saving. New pricing will not alter previously stored electricity costs.*

*Costs are for informational purposes only and will not exactly match your electricity bill.*

### Electricity Rate Structures

#### Flat Rates

Flat rates remain the same throughout the day and every day during the week.

For example,

- If the flat rate is 8.5¢ /kWh, then price of 1 kWh used at 8AM on Monday will cost the same as 1 kWh used at 5PM on Wednesday or at 3AM on Saturday.

## Block Rates

Block rates change depending upon the amount of electricity used.

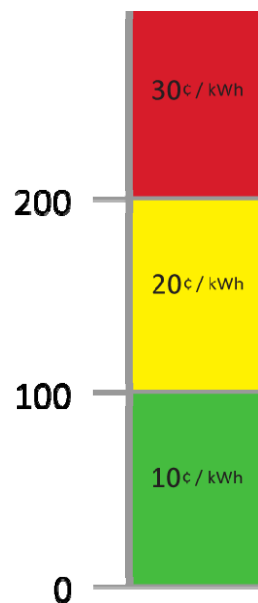
For residential customers block rates are commonly *inclining*: your rate goes up with amount of electricity used.

For example, a Utility company may have three different blocks with three different prices:

- 0-100kWh @ 10 ¢ / kWh
- 101-200kWh @ 20 ¢ / kWh
- 201 (or more) @ 30 ¢ / kWh

At the beginning of each billing period the customer will start with 0 kWh of consumption.

Initially, consumption will be charged at the rate of 10 cents per kWh.  
Once 100kWh have been used the rate will increase to 20 cents per kWh.  
Once 200kWh have been used the rate will increase to 30 cents per kWh.

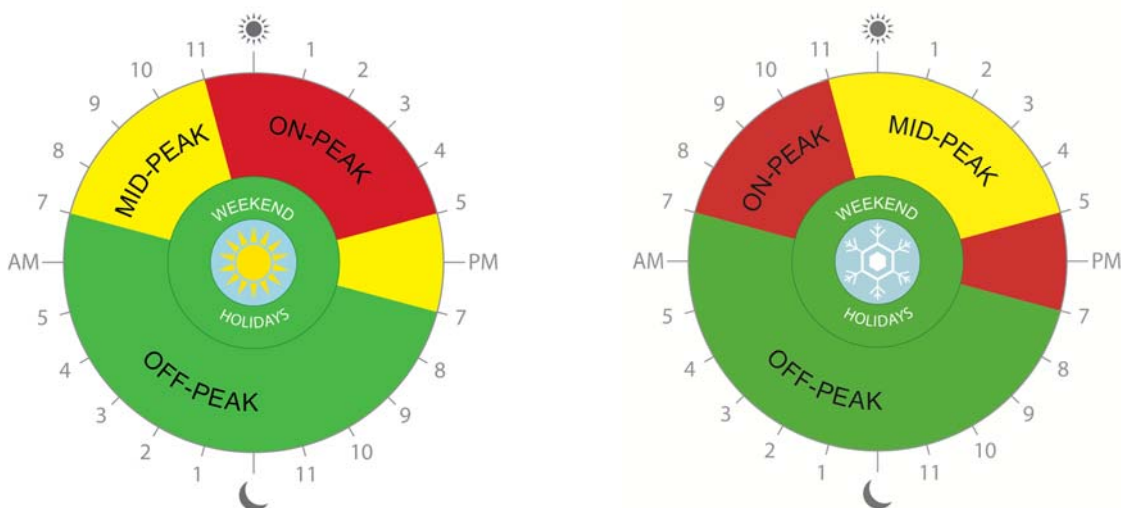


## TOU Rates

TOU rates are based on when you use electricity.

The time of the day, day of the week, and season of the year all impact your TOU rates.

Under a Time of Use rate structure, you will benefit from minimizing your electricity use during periods of high cost. In the example below, electricity is most expensive in the summer between the hours of 11 AM and 5 PM and during the winter during the hours of 7 AM and 11 AM and 5 PM and 7 PM.



***In this three tier seasonal TOU example, the On-Peak tier (red) is most expensive, the Mid-Peak tier (yellow) is less expensive, and the Off-Peak tier (green) is the least expensive.***



On the IHD screen to the right, the TOU electricity rates are:

- 6.7¢ Off-Peak (during the night from 7 PM to 7 AM),
- increases to 10.4¢ Mid-Peak (during morning hours and evening hours, 7 AM to 11 AM and 5 PM to 7 PM),
- and finally increases to 12.4¢ On-Peak (during mid-day and afternoon hours (11 AM to 5 PM))



**The values shown in all rate examples are for explanatory purposes only and may differ from those your Utility uses.**

## Resetting your summary views

Your Utility may periodically reset the *Summary* and the *Detailed Summary* views via the Smart meter. These views provide a summary of your electricity usage and cost (and generation and price if you are a Solar customer) since the summary was reset. When these summaries are reset, the values will begin accumulating from zero.

*By default summaries are reset the first of every month.*

If the Utility does not support automatic summary resets, **you may reset these summaries by selecting the *Summary Reset* option.**



If your Utility supports this feature, the Utility's settings will override the settings configured from your display.

Your options include resetting these views:

- on a specific day of the week by **selecting *Day of Week***,
- on a specific day of the week but not before a certain day of the month by **selecting *Day of Week Advanced***,
- on a specific date within the month by **selecting *By Date***,
- after a specific number of days by **selecting *Fixed Period***, or
- to elect not to reset the views by **selecting *Never***

**\*\*\*PG&E customers: please use the 'By Date' reset option to reset your summary views monthly.\*\*\***

### Day of Week

**Select any specific day of the week** when you would like your summaries to be reset.

Also **select** whether your summaries will be reset on the **first, second, third, fourth, fifth or last occurrence** of the selected day of the week.



For example:

- If you select 'Fifth Monday', then your summaries will be reset on the fifth Monday of each month.
- If a month has only four Mondays, the summaries will be reset the first Monday of the next month.

## Day of the week Advanced

This option is designed for those special cases, where the reset needs to occur on a specific day of the week, but not before a certain day of the month. *For example, this option should be used to reset summaries on the first Monday of the month that occurs on or after the 5<sup>th</sup> day of the month.*

Select a specific day of the week when your summaries will be reset. Choices include: Sunday, Monday, Tuesday, Wednesday, Thursday, Friday, or Saturday.

Also select the number of days that must pass in the month before your summaries will be reset.

*If a month has fewer occurrences than the selected value, the summaries will be reset on the last occurrence in the month.*

## Fixed Period

To specify a fixed period select a specific number of days between resets. Choices include: 1-99 days.

Also select the start date and time for computing when the summaries will be reset.

## By Date

To specify the date select a specific date within the month when your summaries will be reset. Choices include: 1-31.

*For example: If you selected the 10<sup>th</sup>, then your summaries will be reset on the tenth day of each month.*

*If a month has fewer days than the selected value, the summaries will be reset on the last day of the month.*

## Never

If you choose not to reset your summaries or would like to clear a previously entered summary reset date, Save & Exit 'Summary Reset is Now Disabled'.



## About Menu

Your Aztech In-Home Display's *About* menu provides important information that may be useful when trouble shooting. If you have a warranty concern or require assistance, you may be asked to access these screens to provide certain information to your Utility and / or Aztech team.

To obtain system information,

- **press the menu button to access the *Main* menu and then select the *About* menu option to get started**



The following screens support trouble shooting your IHD:

- *About Radio*: identifies information about your IHD's radio type, status and firmware version
- *About Meter*: identifies the meter that the IHD is communicating with
- *About IHD*: identifies the IHD serial number, and hardware and firmware version numbers
- *Meter reading*: presents the total electricity consumed per tier
- *About Prices*: provides detailed information about your electricity rates

## About Prices

Generally, the information on this screen is used by your Utility company to confirm prices and rate structure information.

In the Time of Use example below, the About Prices screen provides detailed electricity price information and billing period information:

- electricity rate structure in effect (TOU, Block, FLAT, etc.)
- number of tiers or blocks in rate structure (for example a five tiered Time of Use rate structure as illustrated on screen to the right: TOUx5);
- length of time the rate structure is in effect (usually reset by Utility on a daily basis and shown as date to date. For example, Jul 11 – Jul 11.) ;
- price and label of current rate tier, and when it will expire;
  - (If your rate structure is an inclining Block, consumption in KW remaining in the current block are displayed)
- how long until rate structure is no longer in effect (16 mins 34 se);
  - (automatically renewed by utility company)
- price and label of next rate tier;
- if you are generating power a flat rate price for generated power is also displayed; and
- when the billing period starts and ends.





## Trouble Shooting your IHD

If your display is blank,

- [please power your IHD](#) with the provided AC adapter to recharge the battery and
- [press the Power button to turn it on.](#)

If your display is not updating information on the screen,

- [verify that your IHD is still communicating with your Smart meter](#)
  - the  **Antenna icon** is displayed when your IHD connects wirelessly to your electricity meter.
    - when flashing, the signal strength is weak.
    - when the signal has been lost, the three bars are replaced with an X. 
- If the signal has been lost or is weak, [relocate the IHD closer to your meter until the antenna icon is solid and the information displays are updating](#)
- [power cycle your IHD](#)
  - [un-plug the device,](#)
  - [shut down the device through the Shut Down menu option,](#)
  - [plug device back in, and](#)
  - [turn it on](#)

If your display has never displayed information on the screen,

- [follow the steps described in the Quick Start Setup Guide \(see \[myaztech.ca\]\(http://myaztech.ca\)\)](#)

If these steps do not resolve the issue you are concerned about, please contact your Utility company and they will assist you with next steps.